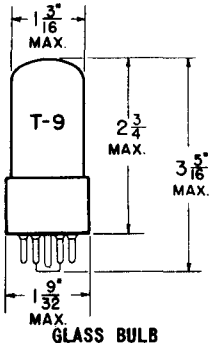
TUNG-SOL

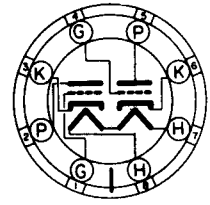
DOUBLE TRIODE



COATED UNIPOTENTIAL CATHODE

HEATER
6.3 VOLTS 0.6 AMP.
AC OR DC

ANY MOUNTING POSITION



BOTTOM VIEW
INTERMEDIATE SHELL
8 PIN OCTAL
880

THE 6SN7GTB IS A MEDIUM-MU TRIODE INTENDED FOR USE AS A COMBINED VERTICAL OSCILLATOR AND VERTICAL DEFLECTION AMPLIFIER IN 600 MA. SERIES HEATER OPERATED TELEVISION RECEIVERS. THERMAL CHARACTERISTICS OF THE HEATER ARE CONTROLLED SUCH THAT HEATER VOLTAGE SURGES DURING THE WARM-UP CYCLE ARE MINIMIZED PROVIDED IT IS USED WITH OTHER TYPES WHICH ARE SIMILARLY CONTROLLED. WITH THE EXCEPTION OF CONTROL OF THE HEATER THERMAL CHARACTERISTICS, ITS CHARACTERISTICS ARE IDENTICAL TO THE 6SN7GTA.

DIRECT INTERELECTRODE CAPACITANCES

	TRIODE 1	TRIODE 2	
GRID TO PLATE: G TO P	4.0	3.8	μμf
INPUT: G TO (H+K)	2.2	2.6	μμf
OUTPUT: P TO (H+K)	0.7	0.7	μμf

RATINGS

INTERPRETED ACCORDING TO DESIGN CENTER SYSTEM

EACH UNIT

	CLASS A_1 AMPLIFIER	VERTICAL[A] DEFLECTION AMPLIFIER	
HEATER VOLTAGE	6.3		VOLTS
MAXIMUM HEATER-CATHODE VOLTAGE:			
HEATER NEGATIVE WITH RESPECT TO CATHODE			
TOTAL DC AND PEAK	200		VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE			
DC	100		VOLTS
TOTAL DC AND PEAK	200		VOLTS
MAXIMUM PLATE VOLTAGE	450	450	VOLTS
MAXIMUM PEAK POSITIVE PLATE VOLTAGE (ABSOLUTE MAXIMUM)	---	1 500	VOLTS
MAXIMUM PLATE DISSIPATION:			
EACH PLATE	5.0	5.0[B]	WATTS
BOTH PLATES	7.5	7.5[B]	WATTS
MAXIMUM PEAK NEGATIVE GRID VOLTAGE	---	250	VOLTS
MAXIMUM AVERAGE CATHODE CURRENT	20	20	MA.
MAXIMUM PEAK CATHODE CURRENT	---	7.0	MA.
MAXIMUM GRID CIRCUIT RESISTANCE (CATHODE BIAS)	1.0	2.2	MEGOHMS
HEATER WARM-UP TIME (APPROX.)*	11.0		SECONDS

[A] FOR OPERATION IN A 525-LINE, 30-FRAME SYSTEM AS DESCRIBED IN "STANDARDS OF GOOD ENGINEERING PRACTICE FOR TELEVISION BROADCASTING STATIONS; FEDERAL COMMUNICATIONS COMMISSION. THE DUTY CYCLE OF THE VOLTAGE PULSE NOT TO EXCEED 15% OF A SCANNING CYCLE.

[B] IN STAGES OPERATING WITH GRID-LEAK BIAS, AN ADEQUATE CATHODE BIAS RESISTOR OR OTHER SUITABLE MEANS IS REQUIRED TO PROTECT THE TUBE IN THE ABSENCE OF EXCITATION.

* HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE 3 TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

CONTINUED ON FOLLOWING PAGE

TUNG-SOL

CONTINUED FROM PRECEDING PAGE

RATINGS – CONT'D

	VERTICAL[C] DEFLECTION OSCILLATOR	HORIZONTAL[C] DEFLECTION OSCILLATOR	
HEATER VOLTAGE	6.3		VOLTS
MAXIMUM HEATER-CATHODE VOLTAGE:			
HEATER NEGATIVE WITH RESPECT TO CATHODE			
TOTAL DC AND PEAK	200		VOLTS
HEATER POSITIVE WITH RESPECT TO CATHODE			
DC	100		VOLTS
TOTAL DC AND PEAK	200		VOLTS
MAXIMUM DC PLATE VOLTAGE	450	450	VOLTS
MAXIMUM PLATE DISSIPATION:			
EACH PLATE	5.0	5.0	WATTS
BOTH PLATES	7.5	7.5	WATTS
MAXIMUM PEAK NEGATIVE GRID VOLTAGE	400	600	VOLTS
MAXIMUM AVERAGE CATHODE CURRENT	20	20	MA.
MAXIMUM PEAK CATHODE CURRENT	70	300	MA.
MAXIMUM GRID CIRCUIT RESISTANCE	2.2	2.2	MEGOHMS
HEATER WARM-UP TIME (APPROX.)*	11.0		SECONDS

[C] FOR OPERATION IN A 525-LINE, 30-FRAME SYSTEM AS DESCRIBED IN "STANDARDS OF GOOD ENGINEERING PRACTICE FOR TELEVISION BROADCASTING STATIONS; FEDERAL COMMUNICATIONS COMMISSION. THE DUTY CYCLE OF THE VOLTAGE PULSE NOT TO EXCEED 15% OF A SCANNING CYCLE.

*HEATER WARM-UP TIME IS DEFINED AS THE TIME REQUIRED FOR THE VOLTAGE ACROSS THE HEATER TO REACH 80% OF ITS RATED VOLTAGE AFTER APPLYING 4 TIMES RATED HEATER VOLTAGE TO A CIRCUIT CONSISTING OF THE TUBE HEATER IN SERIES WITH A RESISTANCE OF VALUE 3 TIMES THE NOMINAL HEATER OPERATING RESISTANCE.

TYPICAL OPERATING CONDITIONS AND CHARACTERISTICS

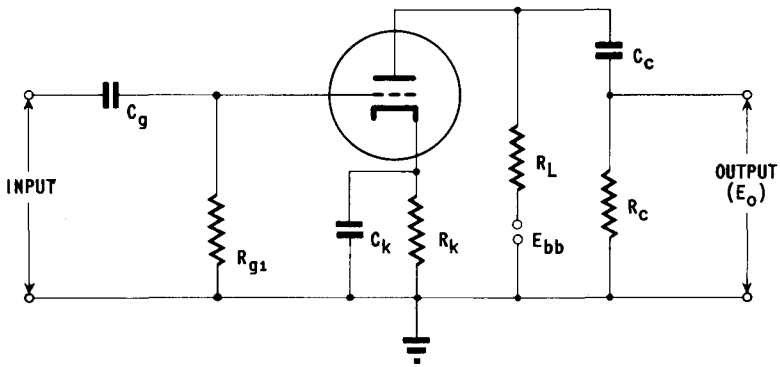
CLASS A_1 AMPLIFIER – EACH UNIT

HEATER VOLTAGE	6.3	6.3	VOLTS
HEATER CURRENT	0.6	0.6	AMP.
PLATE VOLTAGE	90	250	VOLTS
GRID VOLTAGE	0	-8	VOLTS
PLATE CURRENT	10	9	MA.
AMPLIFICATION FACTOR	20	20	
PLATE RESISTANCE (APPROX.)	6 700	7 700	OHMS
TRANSCONDUCTANCE	3 000	2 600	μMHOS
PLATE CURRENT AT E_C = -12.5 VOLTS	---	1.3	MA.
GRID VOLTAGE FOR I_b = 10 μA. (APPROX.)	-7.0	-18	VOLTS

RESISTANCE-COUPLED AMPLIFIER

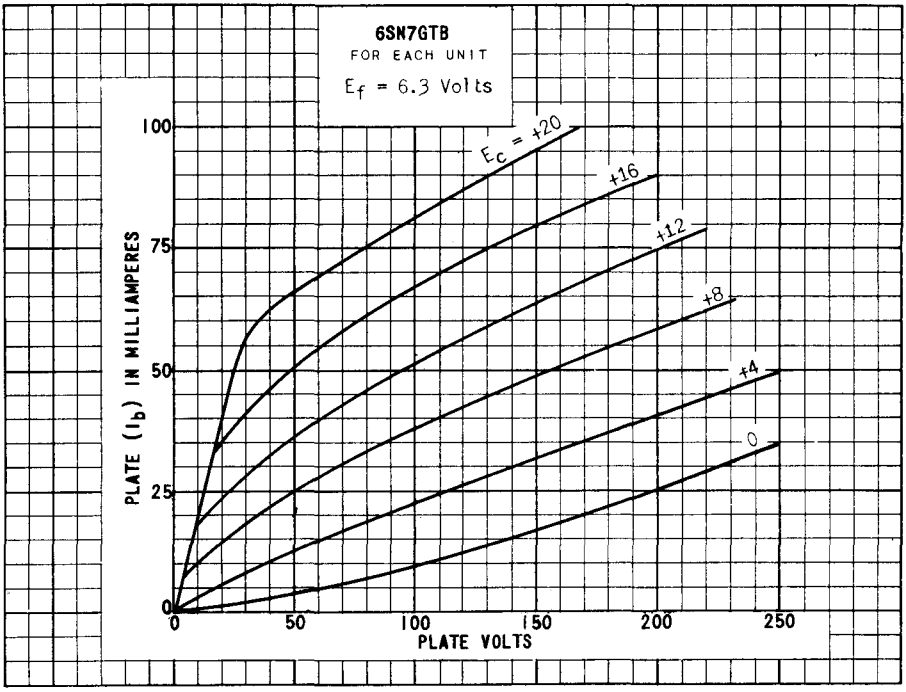
R_L MEG.	R_{g1} MEG.	R_s MEG.	E_{bb} = 90 VOLTS			E_{bb} = 180 VOLTS			E_{bb} = 300 VOLTS		
			R_k	GAIN	E_o	R_k	GAIN	E_o	R_k	GAIN	E_o
0.10	A	0.10	3300	14	13	2200	14	26	1800	14	40
0.10	A	0.24	3600	14	16	2700	15	33	2200	15	51
0.24	A	0.24	7500	14	16	5100	15	30	4300	15	44
0.24	A	0.51	9100	14	19	6800	15	39	5100	15	54
0.51	A	0.51	13000	14	16	9100	15	30	6800	16	40
0.51	A	1.0	15000	14	19	10000	16	32	7500	16	45
0.24	10	0.24	0	15	13	0	16	33	0	17	46
0.24	10	0.51	0	16	17	0	17	38	0	18	62
0.51	10	0.51	0	16	14	0	18	32	0	18	53
0.51	10	1.0	0	17	18	0	18	41	0	19	68

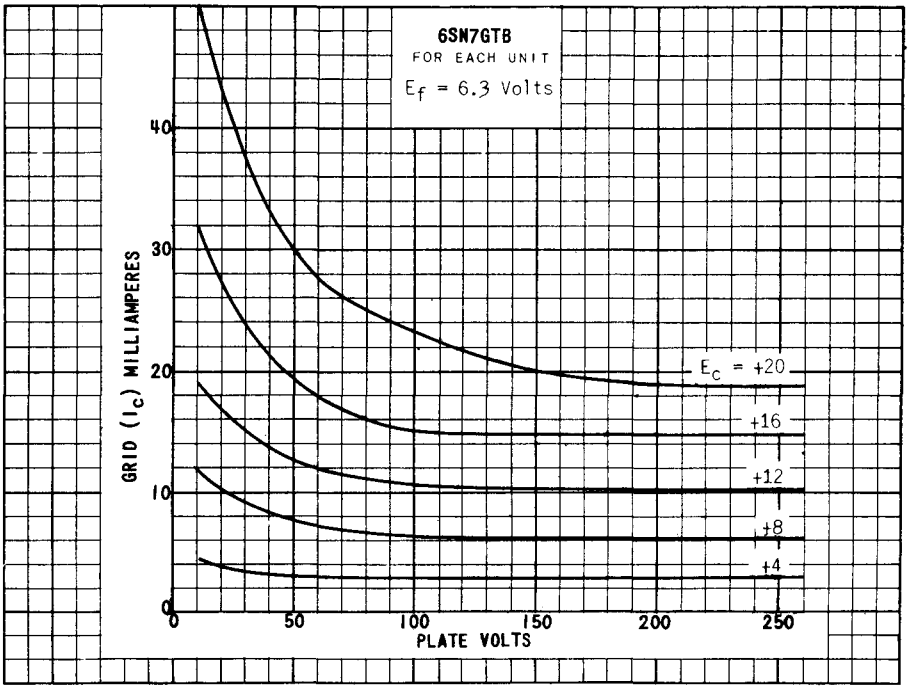
[A] VALUE OF R_{g1} IS NOT CRITICAL.
GAIN MEASURED AT E_o = 2.0 VOLTS RMS OUTPUT.
E_o IS RMS OUTPUT FOR 5% TOTAL HARMONIC DISTORTION.

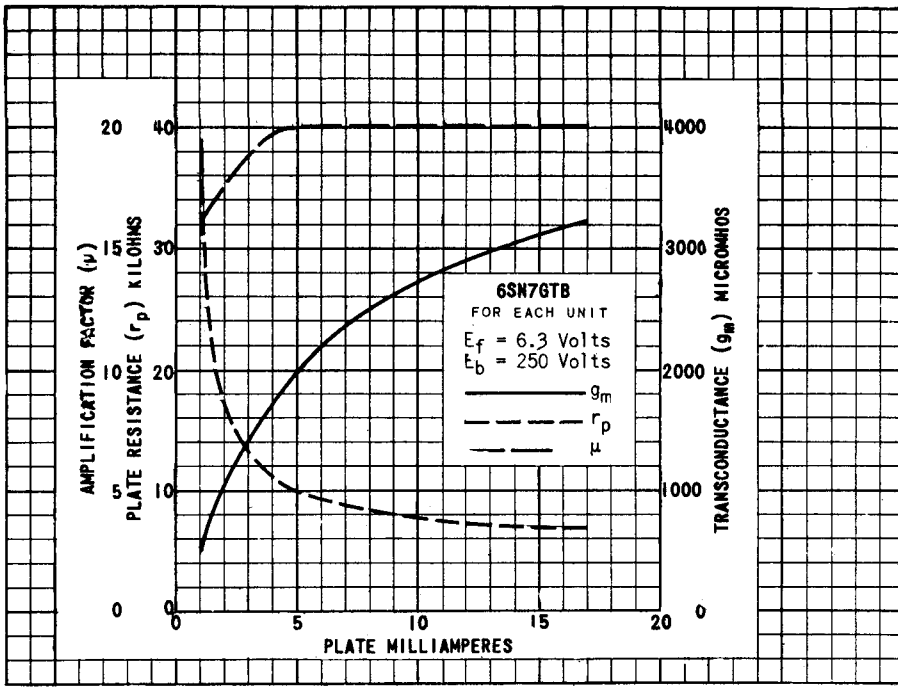


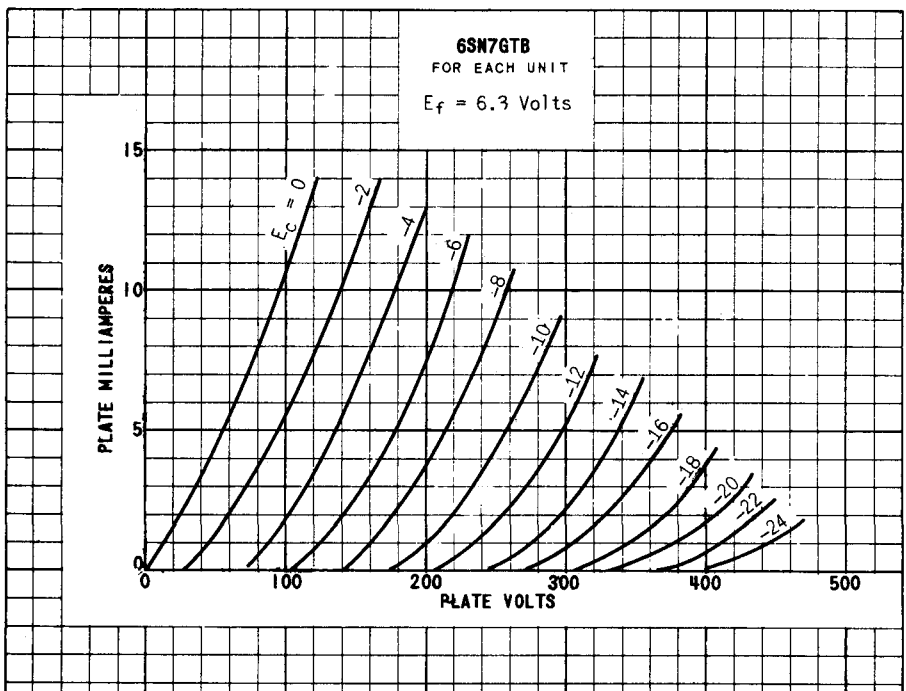
NOTE: COUPLING CAPACITORS C_g AND C_c SHOULD BE SELECTED TO GIVE DESIRED FREQUENCY RESPONSE. R_k SHOULD BE ADEQUATELY BY-PASSED BY CAPACITOR C_k.

6SN7GTB


6SN7GTB
FOR EACH UNIT
Ef = 6.3 Volts
Ec = +20
+16
+12
+8
+4
0
PLATE (Ib) IN MILLIAMPERES
100
75
50
25
0
0
50
100
150
200
250
PLATE VOLTS


6SN7GTB
FOR EACH UNIT
Ef = 6.3 Volts
Ec = +20
+16
+12
+8
+4
GRID (Ic) MILLIAMPERES
40
30
20
10
0
0
50
100
150
200
250
PLATE VOLTS


6SN7GTB
FOR EACH UNIT
E_f = 6.3 Volts
E_b = 250 Volts
g_m
r_p
μ
AMPLIFICATION FACTOR (μ)
PLATE RESISTANCE (r_p) KILOHMS
TRANSCONDUCTANCE (g_m) MICROMHOS
PLATE MILLIAMPERES
0
5
10
15
20
0
10
20
30
40
0
1000
2000
3000
4000


6SN7GTB
FOR EACH UNIT
E_f = 6.3 Volts
E_c = 0
-2
-4
-6
-8
-10
-12
-14
-16
-18
-20
-22
-24
PLATE MILLIAMPERES
PLATE VOLTS
0
5
10
15
0
100
200
300
400
500